

EXHIBIT H

3GPP TSG-RAN WG2 #58bis**R2-072741****Orlando, USA, 25th – 29th June 2007****Agenda Item : 4.9****Source : LG Electronics****Title : Consideration on UL HARQ****Document for : Discussion and Decision**

1. Introduction

During the last Kobe meeting, the semi-persistent scheduling for UL VoIP service has been agreed. Hence, eNB is able to allocate a predetermined uplink resource for the first HARQ transmission and potentially retransmissions to the UEs.

In addition, in order to avoid resource fragmentation and collision with a pre-allocated resource such as PRACH [1,2], the eNB can send PDCCH allocation in the sub-frames where the UE has been pre-assigned resources. Thus, if the UE finds its C-RNTI on PDCCH, the PDCCH allocation overrides the pre-defined allocation for that TTI and the UE's transmission follows the PDCCH allocation.

However, in the situation where such an avoidance is required, if the proper uplink resource is no valid due to other user's transmissions, it is hard for the eNB to allocate uplink resource on the PDCCH allocation.

In this contribution, we discuss this issue in detail and present our view.

2. Discussion

In the following, a couple of examples as mentioned above are described.

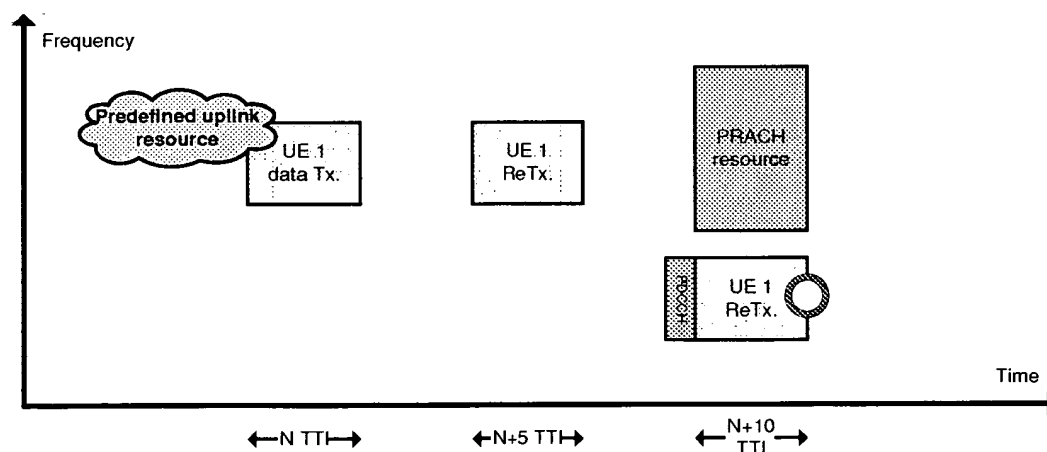


Figure 1, An example of PDCCH allocation

As shown in figure 1, in sub-frames where UE1 has been pre-assigned uplink resource, if the a pre-allocated resource such as PRACH resource blocks up the UE1's transmission, the eNB allocates other uplink resource to the UE1 on the PDCCH. Then, the UE1's transmission follows the PDCCH allocation.

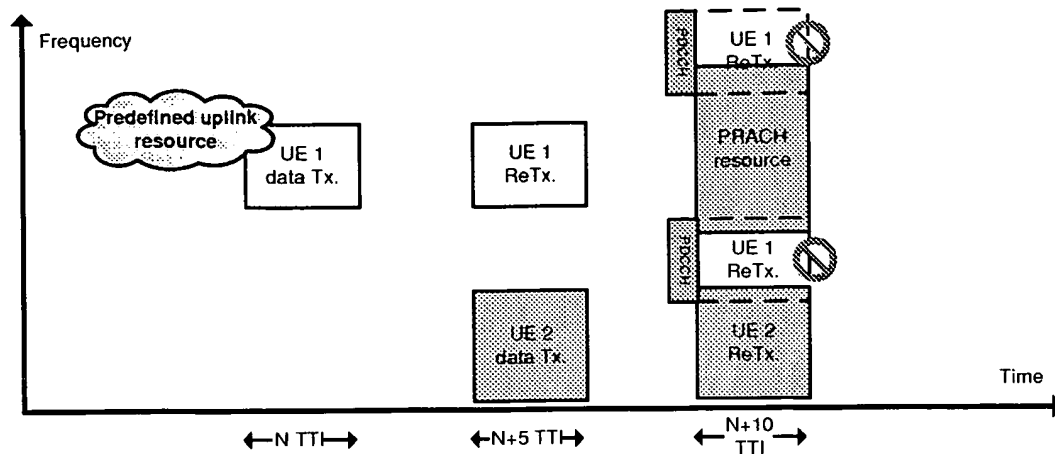


Figure 2, An example of PDCCH allocation problem

However, As shown in figure 2, in sub-frames where the UE1 has been pre-assigned uplink resource, if the a pre-allocated resource such as PRACH and UE2's transmissions block up the UE1's transmission, assuming that there is no more uplink resource which is available to be assigned to the UE1 the eNB can not allocate other uplink resource to UE1 on the PDCCH.

Therefore, here we propose to let the UE skip its transmission at that TTI by using PDCCH.

2.1 Proposed UL HARQ operation and UE behaviour

In this situation, the eNB indicates skipping the UE's transmission at a TTI on PDCCH¹. If the UE receives the indication at the TTI on PDCCH, the UE stops its transmission at the TTI and keeps the data in the its buffer until the transmission is explicitly or implicitly allowed².

3. Conclusion

In this contribution, it is proposed that in the semi-persistent scheduling

- the eNB can indicate the skipping the UE's transmission at a TTI on PDCCH in the situation as above mentioned.
- and, then the UE stops its transmission at the TTI and keeps the data in the its buffer until the transmission is allowed.

4. Reference

- [1] R2-071357, Resource fragmentation in LTE uplink, Ericsson
- [2] R2-071540, Synchronous adaptive HARQ for E-UTRAN UL, Nokia

¹ We assumed that the PDCCH for the skipping UE's transmission has same format as the PDCCH allocation. We think that some code-points or combinations of the information field in the PDCCH could easily indicate it.

² We think that the resuming the retransmission can be explicitly indicated by the PDCCH or implicitly allowed after one the HARQ RTT. But it is FFS.

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Anmelde-Nr:
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The examination is being carried out on the **following application documents**

Description, Pages

1-13 received on 21-12-2010 with letter of 20-12-2010

Claims, Numbers

1-15 received on 21-12-2010 with letter of 20-12-2010

Drawings, Sheets

1/5-5/5 as published

The following document is cited by the Examiner. A copy of the document is annexed to the communication and the numbering will be adhered to in the rest of the procedure.

D3 LG ELECTRONICS: "Considerations on UL HARQ",
3RD GENERATION PARTNERSHIP PROJECT (3GPP),
vol. RAN WG2, no. Orlando, USA; 20070622, 22 June 2007 (2007-06-22),
XP050135522,
[retrieved on 2007-06-22]

I

- 1 The independent claims have been amended in order to remove an unclear expression. However, the amendment includes an unclear phrase and therefore the amended independent claims still contravenes Article 84 EPC, and furthermore extends beyond the content of the application as originally filed, contrary to the requirements of Article 123(2) EPC. The amendment concerned recites that "a new uplink packet transmission and an uplink packet retransmission [...] are to occur within one HARQ process". It is not clear what exactly is the technical meaning of "are to occur within one HARQ process". First of all, it is customary that retransmissions and new packet transmissions occur within one HARQ process (as soon as a retransmission has been successfully received, a new packet transmission occurs within the same process). Secondly, there is no basis for the expression "are to occur". When reading the description, it becomes apparent that what is meant is that semi-persistent scheduling and synchronous HARQ is employed and that it is

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detected that the sub-frame at which the semi-persistent scheduling specifies the transmission of the new packet is the same that the sub-frame at which the synchronous HARQ specifies the retransmission of a packet. If this is indicated in the claims, the clarity deficiency would be remedied (due care should be taken that the particular wording used in the claims satisfy the requirements of Article 123(2) EPC).

- 2 The subject-matter of claims 2, 7, 10 and 13 is unclear, since they refer to "persistently allocating" resources, which have been defined to be "dynamically allocated" in the independent claim on which they depend. There appears to be a contradiction, as dynamically and persistently are mutually exclusive.
- 3 The subject-matter of dependent claims 3 and 8 is unclear (Article 84 EPC). First of all, they refer to "the delayed new transmission", which has never been defined. Furthermore, it is not understood the technical meaning of "freely allocating [...] to occur in any hybrid automatic repeat request process". The independent claims on which they depend specify that the allocation occurs in a different HARQ process without specifying any further constraint. On the one hand, the no constraint of the dependent claims (freely [...] in any) is in contradiction with the independent claim specifying that it has to be a "different" HARQ process than the one initially foreseen. Furthermore, even if it were specified in these claims that they refer to any ARQ process "other than the one initially foreseen", it would still be unclear what is meant by "freely" (maybe a random selection?). It appears difficult to solve this deficiency without deleting these claims.

II

In order to assess the inventive merit of the independent claims, they have been interpreted as mentioned in point I.1 above.

- 1 Independent claim 1 does not satisfy the requirements of Article 52(1) EPC, because arriving at its subject-matter does not involve an inventive step in the sense of Article 56 EPC.

Document D3, considered to be the closest prior art, discloses that for semi-persistent scheduling, in order to avoid a collision with a pre-allocated resource, the eNB sends a dynamic allocation command to the UE that overrides the pre-defined allocation of the semi-persistent scheduling (see D3, section 1). It is straight-forward to apply this technique to the particular case wherein synchronous HARQ is used in combination with the semi-persistent scheduling and the same resource is scheduled to be used for the re-

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transmission and for the transmission of a new packet. Consequently, arriving at a method falling within the scope of claim 1 does not involve an inventive step.

- 2 The same argument applies to independent claims 4, 5, 9, 11, 12, which are consequently also not allowable due to lack of inventive merit (Article 56 EPC).
- 3 Dependent claims 2-3, 6-8, 10, 13-15 does not appear to contain any additional features which, in combination with the features of any claim to which it refers, meet the requirements of the EPC with respect to novelty and/or inventive step.

III

It is not at present apparent which part of the application could serve as a basis for a new, allowable claim. Unless the Applicant succeeds in filing new claims based on inventive features, a refusal should be expected an oral proceeding will be immediately arranged at the next procedural stage.

If despite the above considerations the procedure should be continued, the Applicant is requested to point out and discuss in his reply letter any difference which would distinguish the subject-matter of the present application from the disclosure of the demonstrated prior art. Furthermore, to meet the requirements of Rule 42(1)(b) EPC, the document D3 should be identified in the description and the relevant background art disclosed therein should be briefly discussed.

The description must be brought into conformity with the new claims to be filed (Rule 42(1)(c) EPC and Guidelines C-II-4.5). During revision of the application, due care should be taken not to add any subject-matter which extends beyond the content of the application as originally filed (Article 123 (2) EPC). In order to expedite the procedure, the Applicant is requested to clearly mark the amendments carried out, be it for amendments by addition, replacement or deletion and to indicate on which parts of the originally filed application documents these amendments are based (cf. Guidelines E-II-1).



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| Application No. 08 835 383.4 - 2415 | Ref. NC61924EP | Date 19.01.2011 |
| Applicant Nokia Corporation | | |

Communication pursuant to Article 94(3) EPC

The examination of the above-identified application has revealed that it does not meet the requirements of the European Patent Convention for the reasons enclosed herewith. If the deficiencies indicated are not rectified the application may be refused pursuant to Article 97(2) EPC.

You are invited to file your observations and insofar as the deficiencies are such as to be rectifiable, to correct the indicated deficiencies within a period

of 4 months

from the notification of this communication, this period being computed in accordance with Rules 126(2) and 131(2) and (4) EPC. One set of amendments to the description, claims and drawings is to be filed within the said period on separate sheets (R. 50(1) EPC).

If filing amendments, you must identify them and indicate the basis for them in the application as filed. Failure to meet either requirement may lead to a communication from the Examining Division requesting that you correct this deficiency (R. 137(4) EPC).

Failure to comply with this invitation in due time will result in the application being deemed to be withdrawn (Art. 94(4) EPC).

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Application No.: 08 835 383.4



Agudo Cortada, E
Primary Examiner
For the Examining Division

Enclosure(s): 3 page/s reasons (Form 2906)
XP050135522